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ABSTRACT

Four attempts to use telecommunications in education are reviewed: educational television in Columbia, the Bavarian Telekolleg, ALPS (Adult Learning Program Service), and the proposed Edu-Cable. The lessons that have been learned from them bear on the application of cable television to education and higher education in particular. The analyses are concerned with the economics of the delivery systems and not with the relative effectiveness of TV learning versus face-to-face learning. It was found that selling education requires a continuing marketing and promotional effort whose costs are high. Also, selling education via television on a per-course or per-program basis compounds the sales difficulties. For this reason, it may be desirable to market access to a wide range of educational experiences including courses. In addition, if feedback is necessary, expensive two-way cable technology can be replaced by telephone, the mails, and periodic on-campus visits. Moreover, educators should expect that for every dollar of technology between $3 and $6 will be spent on support services to make it work. Finally, cable operators must be assured that the educators will share the operating and financing responsiblities and risks of such a system. (WCM)

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The Economics of Delivering Education by Television: Some Lessons for Cable Television

by Herbert S. Dordick

SOME LESSONS FOR CABLE TELEVISION

I shall review four experiences in the use or planned use of telecommunications in education and the lessons that have been learned from them that bear on the application of cable television to education and higher education in particular. These analyses are concerned with the economics of the delivery systems and not with the relative effectiveness of TV learning versus face-to-face learning. The convenient, satisfying and not altogether irrational assumption is made that TV teaching is at least as effective as face-to-face teaching.

EDUCATIONAL TELEVISION IN COLOMBIA

In the late 60s, over 300,000 primary school children were receiving up to three hours daily of TV instruction in the then-largest program of its kind in the world. Why, then, was the Minister of Education less than enthusiastic about expanding this program? These were two reasons for his hesitancy. First, demands for secondary, university, and adult or literacy programs were growing; and, second, he was aware of but not certain of the additional financial demands that would be made on him if the

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primary school program were expanded through the addition of new television technology, thus further reducing resources for these other growing demands.

To determine the costs of using new technology, a study was initiated to examine the economic consequences of achieving two educational objectives for Colombia, objectives that were quantifiable without too many qualifying assumptions and meaningful to the Minister's decision-making needs. The first was to increase the availability of primary education and the second to improve the quality of this education. The first required, simply, to provide more places and teachers for primary children. The second was more difficult to quantify since it was neither feasible nor politic to become involved in an educational performance testing program in Colombia. However, it was believed reasonable to assume that a qualified teacher could provide better instruction than could an unqualified teacher, and in Colombia the requirements for a teacher to become qualified are rigidly defined and their numbers and pay scales are known.

Three planning options were offered: First, a minimal cost one, to maintain the present level of growth and standards – in short, to allow the Minister of Education to keep his head above water. Expansion would occur by continuing planned classroom construction, but with no school reorganization, or additional television facilities, no special teacher-training programs or significantly higher salaries to attract and keep qualified teachers.

The second alternative was to intensify school reorganization through consolidation, increase teacher salaries, implement intensive teacher training programs, but allow no expansion in the use of television technology; in short, a classic or nontechnological approach.

The third option was to expand the number of ETV classes and hours by adding an additional TV channel and training associate teachers, a new brand of semi-qualified teacher skilled in the use of TV in the classroom, perhaps not as effective as the qualified teacher with or without TV but better than the unqualified teachers then in the Colombian primary public schools.

A subset of technological options was also addressed: expanded television via satellite then strongly promoted by the U.S. and some Colombian politicians; the use of airborne television similar to the Midwest Program on Airborne Television Instruction, Inc. program then being used in the United States; and the expansion of the existing broadcast microwave system.

The conclusions: First, to the technological options. The expansion of ETV usage in Colombia required a broader base of coverage and an increase in channel capacity primarily within the most heavily populated areas of the country. The existing broadband microwave network,

operating well enough to bring several channels of commercial television to cities from the Caribbean to the Pacific could be added to and expanded through the use of translators and some cable for less than a fifth the costs of the satellite and associated ground equipment and, furthermore, was avilable immediately. Questions about the realiability and maintenance cost of aircraft distribution systems eliminated the MPATI alternative. In short, it was best to ride piggy-back on existing technology and available services.

Now to the planning options: The incremental investment costs of just getting by and not reaching the desired results during the required six-year planning period was about 75% of the cost of meeting the objectives through expansion of ETV technology and training the new associate teachers. Recurring costs would be about a third higher for this case than for those of the minimal program option. While the incremental investment and the operating costs were about the same for the classic nontechnology option as for the technology-expansion option; the secondary school and university system would very likely be inadequate to train the required number of qualified teachers.

But the significant findings were that the costs of technology did not constitute the major part of the investment required to improve Colombian primary education. Less than 4% of the total investment would be spent over the six-year development period for technology and technology related services (improvements to the microwave netowrk, additional studios, additional technicians, training of the special TV teachers, program production, additional TV sets, their maintenance and repair).

Most of the investment would go into higher teacher salaries, improved and increased classroom facilities, and school administration. In short, the greater part of the investment would have to be spent to create a well-founded and viable educational base that could make good use of the technology.

Two important lessons are to be learned from this experience:

- Piggy-backing on existing technology and services saves money and time and produces a higher return on your investment even if not fashionable.
- It takes a lot of money to support technological habits. In this case, for every dollar spent on technology, about $27 would have to be spent on effectively using that technology.

THE BAVARIAN TELEKOLLEG

At a meeting of the European Broadcasting Union in Paris in 1966, there were exciting stories of a new and unusual adult extension program via television under way in Munich and throughout the State of Bavaria.

Few reports were received from Bavaria during the next several years, but a steady stream of German visitors to the United States continued to beguile us with great success stories. In 1969, I was invited to visit Munich and found a very unique and complete program in high school equivalency with television playing a significant but by no means major role.

Telekolleg is a formal instructional service of the Bavarian State Radio and Television System programming about two hours per week of instructional programming over a network of transmitters covering the entire State of Bavaria and emanating from Munich. Two hours of new programming and two hours of repeat programming are provided each week just prior to prime commercial time or betewen five and six in the evening. If the student misses a program one evening, he can usually pick it up on the next. The service is aimed at working adults wishing to obtain their high school diploma.

The war left Germany with a shortage of civil servants; many of the returning veterans chose to return to family businesses and farms rather than assume government posts under occupying armies. In an effort to recruit government workers, more than 60 schools were established in Bavaria alone with a potential enrollment of about 10,000. At no time did the actual enrollment exceed 4,000 and the largest graduating class was about 200. Full-time day school was impossible for adults who were rebuilding their homes and families and a four-year schedule was much too long.

With considerable support from the Bavarian Radio and Television authorities and the Volkswagon Foundation, Telekolleg was born. By the end of the third year enrollment throughout the State had reached 40,000, and at the end of the first seven trimesters required for graduation, over 4,000 took the final examination with a 95% rate of success. The examination was identical to that given full-time day students, and the grades in all categories were equal to or higher than those of the full-time day students. However, one must not be too hasty to credit this as proof of the success of televised instruction; students in the Telekolleg were older and more mature, often more highly motivated, and could choose to take the examinations when they felt they were ready. Furthermore, TV plays a relatively minor role in the entire instructional system.

Correspondence, on-campus student teacher meetings, and telephone contact as well as an excellent set of printed materials keep the entire program going. On-campus meetings once every three weeks are required as are frequent homework assignments which are mailed to school centers and returned to the student for comments and, often, requests for a telephone conference follow-up.

A TV audience of between 300,000 and 400,000 is reached by these programs. Enrollment requires the payment of a fee ranging from about $7 for a year of three trimesters or $27 for the entire course to less than $3 a

course for those not taking credit or simply auditing for single credits. Total enrollment hovers near 40,000 with about 10,000 full credit students. All enrolled students, whether for diploma or individual course credit attend meetings and all receive the printed material appropriate to their course of study.

Fourteen months of extensive advertising and promotion preceeded the first televised program in 1966. Government, industry, schools, and the foundations participated and continue to participate in extensive promotional campaigns.

State authorities claim, and my own calculations confirm, that the cost to the state for a graduate of the Telekolleg is about 15% of the cost for graduates of the day schools.

Out of a budget of about $350,000 per year, one-third or about $115,000 is spent for television. This includes script-to-screen costs of the program, actors, and technicians and the special studio equipment not provided by the state radio and TV organizations. Thus, for every dollar spent for technology, three dollars are spent for administration, group meetings, printed materials, the special telephone language drill program, and instructors.

Several important lessons can be learned from the Bavarian Telekolleg:

- The nontraditional learner needs to be sold on education. Only the most dedicated student will seek these programs out on his own. Marketing and advertising are major tasks and require considerable investment.
- Even the most devoted students must be motivated and paced. The loop must be closed and the string to the student periodically pulled. Two-way cable communications with an electronic slap on the wrist for the sleepy scholar is not yet here, but correspondence methods, on-campus examinations, and frequent meetings are excellent substitutes. Student-to-student interaction is probably the most valuable stimulus for the student.
- Once again, the cost of the technology far outweighs the cost of making that technology work; for every dollar spent on television, over $3 is spent for support or as the educators call it, "utilization."
- Piggy-backing on existing facilities and making good use of existing services such as the telephone and mails reduces the cost of delivering education.
- Program costs will rise as the student become more sophisticated television viewers. In Bavaria, the early hourly costs for programming ranged between a low of $100 to a high of $500. As television became more commercial and advertising appeared on the state-operated system, the cost of the instructional programs

rose dramatically. Current costs are approaching $1,000 an hour, and it would not be at all surprising if the black and white TV teacher-with-the-pointer-in-front-of-the-blackboard has been replaced by a multi-colored animated feature. Is it because the students demand it or are the producers competing with their commercial counterparts?

ALPS – ADULT LEARNING PROGRAM SERVICE

The Adult Learning Program Service was a proposed national project offering multi-media information and education services to adults who have attended but never completed high school. Its sponsor was to be the Corporation for Public Broadcasting, but it died like many other CPB projects during the budgetary battles between the Corporation and the White House. The comprehensive research into target audience, student motivation, program content, community utilization, and costs are, however, of considerable interest to those seeking to use TV for nontraditional studies.

Active support of adult educators, public broadcasters, various national agencies such as unions and industry, universities, colleges, and local school authorities were entlisted. Indeed, capturing the attention and support of the adult education community, wherever it was to be found, was crucial to the success of the project – it was important that this powerful group feel that ALPS would support their work and not compete with them.

ALPS had its genesis in the realization that in 1970 there were 30,000,000 adults in the country who might have taken the General Educational Development tests. Only 331,500 or about 1% actually did and of these one-third failed! Out of this very broad target audience, the most likely students, it was postulated, would be those seeking to complete their high school education for job, family, or personal reasons. A target audience of about 8 million adults between the age of 25 and 44 was selected.

A Harris survey drawn from this target indicated that 84% "wished they had gone further with their education." Of these, about one-quarter were sufficiently dissatisfied with their education to be "very likely" to take courses at home via television. The hard target, at least initially, would then be about 3 million adults!

Some demographics about this audience are of interest: There are more men than women in the target audience – 56% vs. 44%. The majority are white (81%), and the largest percentage – 34%, live in the South. The fewest (15%) are in the West. More than 60% live in metropolitan areas, evenly divided between the central city and the suburbs. Some 62% of the men and women are employed, and 44% earn

between $6,000 and $10,000 per year.

What are their educational objectives? Research found that five could be defined:

- To improve their skills for solving "life's problems" – learning the ropes but not necessarily the techniques.
- To motivate themselves to seek additional skills and better define and achieve their goals.
- To improve reading effectiveness.
- To improve and deepen their understanding of mathematics.
- To continue study, perhaps, beyond the GED.

The program structure, after many months of research and surveys, was planned along the following lines:

- A general-purpose TV series of 35 hour-long programs in magazine format mixing motivational lessons with techniques, information, and practical dramas on solving life's practical problems. *Sesame Street* pointed the way, but there had to be some very specific goal-oriented instruction.
- An inventory of short radio features, none longer than five minutes in length, featuring success stories, and promotional and motivational messages to be used as needed by the local stations.
- A specific-purpose TV series of 30 half-hour units devoted to the traditional skills such as reading, mathematics, science, and civics.
- Local TV and radio programs derived from specific local learning situations and produced locally.

The station manager, on whom much of the success of the program would rest, is called upon to develop local support from community, government, union, and industry. His support could be encouraged by the offer of grants for production and community relations to generate community support. Furthermore, group-learning efforts, such as viewing of programs at local community centers, union and business financing of audio tapes and printed materials, would serve to increase the local peer pressures that motivate the student. Indeed, some sponsors were considering awards and parties for those meeting specified objectives.

It would make little sense to review the details of the budget for a program that died before it could be implemented, but is useful to review the various proposed expenditures as ratios of total costs. Approximately 37% of the entire first year's budget was for TV production including research necessary to design and produce the programs. The remaining two-thirds was for audience research specifically to obtain feedback for future programs, marketing and promotion, and community utilization. Marketing, community utilization and promotion accounted for 30% of the entire budget.

How do the proposed ALPS costs compare with the usual costs for adult education? Taking into account all sorts of qualifying assumptions, it

was estimated that with an enrollment of half-a-million students, ALPS cost per pupil-hour would be about 86 cents and would drop to 31 cents per pupil-hour when the enrollment rose to 1.5 million students. For comparision, elementary-secondary school costs range from 44 cents per pupil-hour to $1.24 per pupil-hour, while adult education costs appear to be in the neighborhood of 60 cents to $1.67 per pupil-hour. In other words, ALPS begins to payoff when the enrollment reaches about 900,000 students!

Several important lessons can be learned from this abortive experience, some new and others reinforcing previous findings:

- The nontraditional adult learner, no matter how well motivated, must be sold on education. His attention is drawn to other matters – family, job, civic and political affairs. He is busy, and learning is an inconvenience. There must be an attractice package for him to buy!
- Rewards are important. Often achieving the necessary credits for a degree is enough. But for many the degree is of less importance. Group or peer pressures are significant motivators, hence a trend towards group learning and group meetings. Job and income rewards would be best and, indeed, the Japanese NHK Gakuen (Secondary Schools) in cooperation with industry offer just that.
- Standard cost ratios once again reappear: A ratio of almost 3 to 1 in favor of nontechnology investment is required to make good use of existing TV, radio, and telephone.
- ALPS proposed to offer access to relevant education to the audience. Just how many would buy was never discovered. Support for ALPS was to come from the Corporation for Public Broadcasting via federal and foundation grants. The payoff to the country would be a better informed electorate. Eventually, business, industry, and the students themselves might be asked to pay for at least a portion of the program. At cost, a student would have to pay about $18.90 for 60-hour course of instruction. What ALPS showed was that it didn't take too many students to make the costs appreciably less than what the federal government was then spending for adult education.

EDU-CABLE; EDUCATIONAL, TRAINING, AND LEISURE-TIME SERVICES VIA A LEASED CATV CHANNEL

About two years ago, at the request of the OTP, I explored experiments to be performed on pilot CATV projects then being considered. One output was a proposal in the form of a business plan to provide OTP with a data base from which to evaluate Edu-Cable as one of a number of possible services to be offered commercially on cable. The

plan was structured as if it were to be used for an imminent entrepreneurial venture, possibly involving venture capital from the investment community. The intent was to demonstrate, if possible, sufficient economic viability to make Edu-Cable a reasonably attractive business risk requiring little or no stimulation from governmental agencies, especially on an on-going basis. Apart from possible sponsorship, the concept of Edu-Cable is as a privately financed entrepreneurial activity capable of being self-supporting in the commercial marketplace.

I shall describe some of the more salient features of the plan and offer some explanation of why, despite the glowing financial returns apparently possible, *it has not* been implemented.

The ficticious Edu-Cable Corporation (ECC) will offer adult and postsecondary courses as well as university extension programs over leased CATV channels. ECC will not compete with educational institutions but rather will cooperate and jointly sponsor courses offered by originating and credit awarding institutions.

All revenues to ECC will come from subscriber enrollment in the courses offered, and access to the course will be controlled by the use of a scrambled pay-cable type of channel. Hence, it operates as a per-program pay cable operation.

The plan is considered feasible only for systems with a minimum of 5,000 subscribers, and courses will be offered only if 5% of the subscribers enroll. I shall have more to say about this requirement and the variety of ways by which it can be met.

The initial objective of the plan is to achieve profitable operation on one leased channel within a two-year operating period. This requires:

- Finding suitable sites of sufficient CATV penetration near educational institutions offering adult courses and extension programs and where there is some evidence that those living in the cabled area participate in these programs.
- Finding the kinds of courses that are attractive to subscribers but do not require expensive productions.
- Determining the methods and costs for providing access and for charging for the cable-cast programs. The plan assumes that ECC will charge on a per-program basis utilizing available channel access technology. Terminals would be placed in the homes of all subscribers to permit impulse buying. While costs of the terminals could be shared with the cable operator who is offering other pay services, the plan assumes that ECC will, at worst, have to pay for the terminal and its installation.

An extensive marketing campaign is envisioned, focusing initially on cable subscribers, and then on the passed-by homes. Since the sponsoring institution as well as the cable operator stands to gain from the success of Edu-Cable, the former from percentages of the fees charged for the courses

and the larger the enrollment they can expect, and the latter from the possibility that new subscribers to cable will appear in order to avail themselves of the courses offered, the cost of this campaign could be shared.

A key factor in the marketing plan is to place channel access equipment in every home, thus encouraging the subscriber to use the equipment. The cost and maintenance of such equipment can be high. While the plan assumes that ECC will do just that, it is a bit unrealistic. More realistic would be to charge each subscriber who wants a box a deposit returnable upon relinquishing the converter, or, using the Book-of-the-Month-Club approach, requiring the subscriber to purchase a certain number of course-hours in his first subscription year.

An alternative to a per-program charge is a modest monthly fee for access to courses via the supplied channel access equipment. It is of little concern, then, whether or not the subscriber purchases a specific course. The monthly charges must, of course, be high enough to defray the cost of the offerings but not too high to discourage monthly payments. In the cost/revenue projections to follow this cost turns out to be $6.25 per month.

To be competitive with on-campus tuition, charges of $1/hour for noncredit courses and $2.00 for credit courses are to be charged. Assuming 50% enrollment for each, the average cost per course-hour is $1.50. Revenue estimates are arrived at on the basis of billable hours. To arrive at a reasonable method of computing billable hours 100% utilization is defined as 20 hours of course-programming, paid for by at least 5% of the subscribers. Thus, for a system of 5,000 subscribers, if 250 subscribers enroll for 20 hours of courses per week the weekly billable hours are 5,000 and at an average revenue of $1.50 per hour, the weekly revenue would be $7,500. Alternatively, 5,000 subscriber-hours could be obtained by fewer subscribers paying for more hours of viewing. If each subscriber purchased one course-hour at $1.50, this would amount to $6.25 per subscriber per month.

If every home in the 5,000 subscriber area agreed to lease a converter for viewing educational, cultural, instructional programs at a monthly rate of $6.25, maximum revenue of $375,000 per year with which to develop programs would be avilable. The cost of billing and the monitoring of billable hours could be, effectively, eliminated. In short, once the subscriber pays $6.25 (or $75 for a year's programming) what courses he takes or when need not be of much immediate concern. The long-term concern would be to make good use of the revenue for programming so that the subscriber renews for the following year.

For systems with 10,000 subscribers, the maximum yearly revenue would amount to $750,000 and for systems with 20,000 subscribers, $1,500,000!!

Five major cost categories were considered in this business plan.

Channel Leasing – The maximum cost is assumed to be no more than 1/20 of the normal subscriber income from a twenty-channel system. No variable rate card for special hours, days, or services was assumed rather unrealistically. For the 5,000-subscriber system, the yearly lease cost is assumed to be $15,000; for the 10,000-subscriber system, $30,000, and for the 20,000-subscriber system, $60,000.

The hourly lease cost is $15, $30 and $60 respectively for 100% utilization. Clearly if the use rate falls to, say, 50%, the hourly rate charges effectively double.

Cable operators may ask for a percent of the gross revenue rather than a set yearly lease rate. On the other hand, considering the risky nature of this business, he may demand the fixed rate up front.

Program Production and Copyright – These costs are most uncertain. Several levels of production were assumed – for start up, simple black-white filming of the in-class lecture at a cost of about $500/hour, but eventually rising to over $5,000 per hour for more elaborate productions. In all cases, these costs were amortized over four showings, after which it was assumed new productions would be required.

If the production costs were borne by the sponsoring institution, ECC would pay the institution 50% of the gross subscriber receipts for the use of the material. If, on the other hand, ECC assumes the entire cost of production, the sponsoring institution which would still have to lend credibility to the course and provide the necessary support in the form of correspondence, examinations, and registration, and so on, and would receive 25% of the gross subscriber revenues.

With the courses ranging from eight to sixty hours, the program costs could be anywhere from a very low one of $4,000 to a very high one of well over $300,000. Even at that, these appear now to be gross underestimates. While amortization over a longer period of time – more showings of the same course on many other systems throughout the country – could make the books look good, the up-front expenditure is still extremely high. And the show could be a flop!

Capital Facilities and Operating Costs – These costs ranged from $24 per hour to $84 per hour depending on whether ECC simply played tapes provided by the institution, provided a mobile color taping facility, or managed the entire production in its own facilities.

Support Costs – These are general operating overhead costs to be assumed by the ECC and set at 120% of operating costs.

Access Equipment – Several uncertainties exist in attempting to define these costs. Nevertheless, we assumed that devices could be purchased for about $50 each, in fairly large quantities. Further, a worst-case assumption is made that ECC would bear the entire cost of purchasing and installing these devices, a rather startling suggestion since

the cable operator could use the same device for his own programming.

Does ECC make money and when?

For the small 5,000 subscriber system, ECC cannot produce the programs: The sponsoring institution does it all and receives 50% of the gross in royalty payments. In the case of the larger system, there can be a choice of who does program production. This is included in the following financial summary (Figure 1, page 86).

If this is so attractive a business opportunity, why is it not now being implemented? There are many reasons and these are some further lessons to be learned:

- While most surveys of potential cable subscribers almost always show a strong demand for educational programs, the demand rarely, if ever, materializes. Despite the attractive Return on Investment of the various market options, the maximum negative cash flow or investor's exposure is high, and venture capital is difficult to obtain. The cost of money is too high for the risks. In short, the market is unknown, untried, and characteristically unstable. Education has never been known to make money; education costs money!
- Cable operators are frequently loath to lease channels to doubtful projects. The greater the doubt, the greater their desire for up-front payment rather than a percentage of gross revenues, thus increasing the investor's cash exposure. Furthermore, many systems in university and college towns where the market may be favorable do not have sufficient channel capacity to lease for doubtful ventures.
- By far the greatest unknown is the cost of producing suitable educational material. Programming risks for projects such as ECC are no different for educators as they are for motion picture producers – all the money is up front and a flop is a disaster. It may be, however, that of all the high-risk costs, program production is one that might be financed by federal grants. Instructional software grants are not unknown and a disastrous sixteen-hour physics or arts course might be turned into fifteen-minute or half-hour instructional film strips for class room use, thus salvaging at least part of the initial investment.

CONCLUSIONS

Doubtless there are some fundamental truths buried in these experiences, truths that can be of significant value to the application of television technology to education and specifically of cable television to higher education. In this relatively short paper, it has not been possible to explore in great detail the variety of economic experiences these four

*Financial Summary of Operation of One Edu-Cable Channel**

	Start-up operation				Steady-state operation		
Mode of operation	Profitable Operations	Cumulative break-even point	Max-neg. cash flow	Cash flow crossover point	Annual revenues	Pre-tax profit	Return on investment
20,000-subscriber CATV system; EEC does not program production	9 mo.	20 mo.	$370,000	24 mo.	$1,500,000	$382,000	35%
20,000-subscriber CATV system; EEC does all program production	13 mo.	23 mo.	$540,000	28 mo.	$1,500,000	$434,000	37%
5,000-subscriber CATV system; EEC does not program production	14 mo.	32 mo.	$136,000	45 mo.	$ 375,000	$ 52,000	12%

* From *Aspen Notebook Cable and Continuing Education*, Adler and Baer, Praeger Publishers, 111 Fourth Avenue, New York, N.Y. 10033, 1973. p. 125

Fig. 1

programs have illuminated. However, these are some very clear insights one can gain from these experiences insights which may be of significant value to those planning to use cable for education.

(1) The Market and Marketing: The Education market is an uncertain one subject to trendy fashion. Popular courses this semester draw few students the next. It is unclear why. In the face of the high product cost, its life is extremely important and if the product cannot be used over several years and beyond the boundaries of the originating institution and its neighboring communities, it is uncertain if an investor would be willing to place his money in this market. It is also uncertain if a university would wish to invest its limited resources unless it was very clear that there were other savings and other benefits to be achieved.

In any case, the marketers of such programs must recognize that despite subscriber surveys which rank education high, there is little evidence that those same respondents, when faced with a choice of paying for an educational program or viewing free TV, will choose the education program. In short, education is difficult to market, and there is very little experience in the kind of promotional efforts required to do so. We have but to look at the recent records of proprietary schools who have had the longest experience with marketing education to see how difficult it is for them to survive the vicissitudes and uncertainties of the educational market. In any case, selling education requires a continuing marketing and promotional effort whose costs are high.

Credibility is an extremely important factor in the sale of education, and yet all too frequently when the educator sells he looses credibility. For this reason it may sometimes be better for educators to leave the selling to national and community organizations that are the client's peers. Thus, a sort of peer presure can develop which will not only help sell the educational program but may also reduce dropouts. Dropouts cost a great deal of money, and again a glance at the experiences of the proprietary schools will show to what extent they suffer when dropouts increase above some predicted number.

Selling education via television on a per-course or per-program basis compounds the sales difficulties. For many adults, education is fashionable, perhaps desirable, often necessary but almost always inconvenient. The mechanics of purchasing a course or program may lose the student. For this reason it may be more desirable to market access to a wide range of educational experiences including courses. In effect, the subscriber is offered access to the cultural, artistic, humanistic outputs of the university and college, for which he pays a monthly or yearly subscription fee. Once having made this sale, the institution need not concern itself with just when and how the viewer utilizes the channel-access equipment. The university and the cable operator must concentrate on providing a variety of offerings that will attract the

subscriber to renew his subscription.

(2) Cable Communications and Integrated Communications Technology: Cable must be considered as an additional carrier of communications services available to the educational institutions. It makes little sense to consider cable as something new and separate from existing microwave and telephone resources. Offering educational programs via the cable without utilizing the available resources of telephone and microwave facilities, or for that matter the mails and the campus, is wasteful. The educator must piggy-back existing system capabilities, recognizing that if feedback is necessary, there is no need to wait for expensive two-way cable technology but rather utilize telephone, the mails and the periodic on-campus visits. To the entrepreneur who wishes to offer educational services via communications, the return on his investment can be large if he recognizes that his investment includes all of the prior investments of AT&T, the broadcasters, and the U.S. Postal Service. His delivery system will not be a pure one but it will work and furthermore can be quickly implemented.

(3) Costs: Cable technology will not be the major consumer of dollars for the delivery of education. Experience has clearly shown that technology itself is a relatively small consumer of resources but rather, that it generates the need for extensive investments in services that will make good use of the technology. One should expect that for every dollar of technology (one-way or two-way television, channel-access equipment, studio facilities and tapes, and so on.) between $3 and $6 will be spent on support services to make it work. These will include: processing student applications and student papers through the mails, arrangements with the telephone company for student/teacher conferences, periodic on-campus visits between students and teachers and between students, books, papers and other printed material.

It may indeed be true that educational communications could reduce the need for new capital construction but it will certainly increase the need for operating dollars. Which is easier to come by? Unfortunately the ediface complex on the part of most alumini makes it easier to provide new facilities rather than new services.

(4) Risk Taking and Partnerships: The cable operator is not known for taking risks, certainly not today. The cable operator knows all the trite phrases about how uneconomic educational broadcasting is. He looks with considerable suspicion at schools and universities that not very long ago wanted 20% of his channels gratis for educational purposes, knowing full well that much of their allotted over-the-air time was inadequately used. Today more than ever the cable industry is prepared to fight any city's demands for free channels or free-access time. Many of them believe that one channel for educational access is more than the educators can haldle well. Experience to date with this channel has indeed shown little or no

utilization, but the reasons are not that the educators do not know how to use the channel but rather that this channel offers them nothing more than the educational broadcasting station channel that is already available to them. Indeed, with cable penetration generally less than 50%, the over-the-air channel is much more useful than a limited-coverage cable. The educators need special private-access channels that can interconnect clusters of schools for special instructional purposes, communications facilities for data processing and for computer-assisted instruction. And they must be willing to pay for them. Indeed, many are now already paying for specialized communications channels, either in the form of constructing and running thier own ITFS systems, wiring their own campuses, or leasing lines from the telephone company. In particular, the money now being spent by educators for leasing lines represents displaceable dollars that can be used to purchase more flexible and perhaps less costly cable channels.

The future of cable and education rests on the degree to which the risks for entering this new field can be shared by both the educator and the cable operator. The federal government might be counted on to provide seed money, especially for program production, but the educators will have to provide the nontelevision services in order to make the instruction credible and valuable. Cable operators can provide and maintain the cable channel and the necessary services to make the channel access system work, but they must be assured that the educators will share the operating and financing responsibilities and risks.

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